From:	PETERSON Jenn L
To:	Burt Shephard/R10/USEPA/US@EPA
Cc:	Joe Goulet/R10/USEPA/US@EPA; Eric Blischke/R10/USEPA/US@EPA; Jeremy_Buck@fws.gov; Dana Davoli/R10/USEPA/US@EPA; Robert.Neely@noaa.gov
Subject:	RE: TZ Water Issues
Date:	04/16/2008 11:08 AM

Burt,

Thanks for the update! As for the dilution factor, I believe this is a misplaced use of the pore water ventilation term used by Gobas and Morrison. Gobas first introduced this term to deal with the differential uptake of organic chemicals across the gill. More specifically this term is to describe the reduced uptake of high Kow chemicals by gill ventilation in order to better describe bioaccumulation in aquatic organims. As you know, gill ventilation, along with the Kow, describe the accumulation and subsequent body burden, since the gill uptake rate is the combined process of gill ventilation and the diffusion rate of the chemical across the gills. However, this clearly was never designed to describe direct toxicity, which can act by many different modes of action. That is what the AWQC and other TRVs are designed to do - experimentally give us information on effects.

I wasn't around to hear the conversation, but we are trying to protect a community of organisms that live in and around the transition zone water medium, including true in fauna and epibenthic organisms, as you describe below. The range of species with different feeding and habitat requirements do not limiting exposure. Comparison of AWQCs or other appropriate water TRVs directly to that medium (which is a mixture of SW and GW) is the logically step.

I am glad they like the ATC approach. I was actually afraid they may protest it, and I guess they still might where it comes to the PAH dietary evaluation for the protection of local fish. It adds much simplicity and avoids the forward calculation iterations that can have a lot of uncertainty built in. It was our intent to extend it to other dietary evaluations where we could, including osprey (mostly for the PCBs and DDTs). I believe that language was in the problem formulation document. We just have to make sure that the calculations used to back calculate to the ACT are explicit and agreed to.

-Jennifer

-----Original Message-----
From: Shephard.Burt@epamail.epa.gov
[mailto:Shephard.Burt@epamail.epa.gov]
Sent: Tuesday, April 15, 2008 5:16 PM
To: PETERSON Jenn L
Cc: Goulet.Joe@epamail.epa.gov; Blischke.Eric@epamail.epa.gov; Jeremy_Buck@fws.gov; Davoli.Dana@epamail.epa.gov; Robert.Neely@noaa.gov
Subject: Re: TZ Water Issues

Jennifer,

I'll likely be on part of the call, but probably will be pretty quiet. TZW didn't come up very much in the lengthy EcoRA discussions John Toll and I had yesterday, but one topic did come up. The dilution factor (i.e. fraction of porewater ventilated by a receptor, which is the source of LWGs argument, coming from the use of the term as one of the 30+ input variables in the Gobas food web model) keeps being raised by LWG. Application of this approach would effectively raise the numerical values of the water TRVs used in the BERA, and I assume the HHRA as well.

Neither Marc Greenberg or Bruce Duncan have seen the approach used before in any ecological risk assessments they've seen. Since both of them know more about groundwater ecological risk assessments than I do, the fact they've never seen the approach before by itself raises a red flag in my mind (I talked with both of them about this last week). Toll raised the fact that just because they haven't seen it before doesn't make it wrong. True statement, but misses the point, which is to define the concentrations of COPECs in TZW to which our benthic receptors are exposed. I suspect that different benthic species have different fraction of porewater ingested values, dependent on their use of the habitats present in the Willamette. Without having any specifics in front of me, I suspect that, depending on the species, fraction of porewater ingested can range from zero on the low end (species that live in the water column, or in sediment but which respire in the overlying water, perhaps via a siphon) to one at the high end (truly benthic species such as burrowing species, that never get near the sediment-water interface). My recommendation is not to agree to LWG's recommendation on the use of dilution factors to modify the risk characterization in the BERA, at least not without specific evidence that application to the Portland Harbor benthic community is warranted.

On a different subject, I've got a type of kudo for you, Jeremy and Joe from LWG regarding the ATC approach in the BERA problem formulation. LWG likes the approach, as I think all of us on the ecorisk team do, and asked the question yesterday if the government team objected to expanding the application of the ATC approach to additional dietary exposure pathways in the BERA. The comment came almost in passing, so we didn't go into details, but the obvious extension to me from what we

had in the BERA problem formulation would be for additional chemicals (e.g. PCB, DDx, etc.) to the osprey, eagle and the other wildlife target receptors. I doubt that the extension of the approach to other dietary chemicals and fish would get us much worthwhile, since chemicals such as PCBs and DDx are well represented in the tissue residue-effects literature, making that line of evidence stronger than any dietary toxicity or ATC line of evidence would be for fish. What do you think? Would have to go back into our TRV submission to LWG last week and check to see if we have given LWG the dietary ingestion TRVs that would be needed to make the ATC work for additional receptors and chemicals.

Best regards,

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"If your experiment needs statistics to analyze the results, then you ought to have done a better experiment"
- Ernest Rutherford

"PETERSON Jenn L" <PETERSON.Jenn@deq.state.or.us>
04/15/2008 04:33 PM

To: Joe Goulet/R10/USEPA/US@EPA, Burt Shephard/R10/USEPA/US@EPA
cc:
Subject: TZ Water Issues

Hi All-

I was wondering where you were at on the TZ water issues for the meeting tomorrow. From the eco perspective, what are the issues and what is EPA's position on them? Will one or both of you be attending the meeting tomorrow? (b) (6) but will be in tom before the meeting. Please let me know if this is a possibility.

-Jennifer